

WHAT IS CLAIMED IS:

1. A method for identifying an individual exhibiting symptoms of a muscular dystrophy as an individual suffering from scapuloperoneal muscular dystrophy, said method comprising the steps of:
  - (a) obtaining a tissue sample from an individual exhibiting symptoms of a dystrophy, wherein said tissue sample is obtained from a tissue known in a normal individual to express  $\alpha 7\beta 1$  integrin;
  - (b) detecting a transcription or translation product of an  $\alpha 7\beta 1$  integrin gene in said tissue sample;
  - (c) determining a level of the transcription or translation product of the  $\alpha 7\beta 1$  integrin gene in said tissue sample as compared with a level of the transcription or translation product of the  $\alpha 7\beta 1$  integrin gene in a tissue sample from the same tissue of a normal individual,whereby scapuloperoneal muscular dystrophy is diagnosed when the tissue sample of an individual exhibiting muscular dystrophy symptoms comprises a level of a transcription or translation product of the  $\alpha 7\beta 1$  integrin gene in said tissue sample which is lower than the level in a tissue sample from the same tissue of a normal individual.
2. The method of claim 1 wherein the translation product of an  $\alpha 7\beta 1$  integrin gene in said tissue sample is detected by contacting the tissue sample using an  $\alpha 7\beta 1$  integrin-specific antibody.
3. The method of claim 2 wherein the  $\alpha 7\beta 1$  integrin-specific antibody is detectably labeled.
4. The method of claim 1 wherein a transcription product of an  $\alpha 7\beta 1$  integrin gene is detected in the tissue sample.
5. The method of claim 4 where the transcription product is detected using reverse transcriptase-polymerase chain reaction.
6. The method of claim 5 wherein the primers used in the reverse transcriptase polymerase chain reaction comprise the nucleotide sequences of SEQ ID NO:4 and SEQ ID NO:5.
7. A reporter gene construct comprising a transcription regulatory sequence of a human  $\alpha 7$  integrin gene and a reporter coding sequence.

8. The reporter gene construct of claim 7 wherein the reporter coding sequence is selected from the group consisting of a green fluorescent protein, luciferase,  $\beta$ -lactamase,  $\beta$ -galactosidase, or  $\beta$ -glucuronidase, among others, or an immunological tag portion.
9. The reporter gene construct of claim 7 wherein the transcription regulatory sequence comprises the nucleotide sequence of SEQ ID NO:6.
10. The reporter gene construct of claim 9 further comprising a vector sequence.
11. A recombinant host cell comprising the reporter gene construct of claim 10.
12. The recombinant host cell of claim 11 wherein said cell is a cultured muscle cell.
13. A method for identifying a composition which increases expression of an  $\alpha 7$  integrin gene, said method comprising the steps of:
- (a) contacting the recombinant host cell of claim 11 with a test composition to produce a contacted recombinant host cell;
  - (b) monitoring reporter coding expression in the contacted recombinant host cell and monitoring expression of the reporter coding sequence of the reporter gene construct in a recombinant host cell which has not been contacted with the test composition;
  - (c) determining that the test composition increases reporter coding sequence expression when the expression of the reporter coding sequence is greater in the contacted host cell than in the recombinant host cell which has not been contacted with the test composition,
- whereby a composition is identified which increases the expression of an  $\alpha 7$  integrin gene when the expression of the reporter coding sequence is greater in the contacted host cell than in the recombinant host cell which has not been contacted with the test composition.
14. The method of claim 13, wherein the monitoring and determining steps are carried out in a high throughput assay format.
15. A method of alleviating symptoms of a muscular dystrophy which is characterized by levels of  $\alpha 7$  integrin which are lower in a patient suffering from or susceptible to said muscular dystrophy than in a normal individual, said method comprising the step of administering to a patient suffering from or susceptible to the muscular dystrophy a composition identified by the method of claim 13.

16. The method of claim 15 wherein said muscular dystrophy is Duchenne muscular dystrophy.
17. A method for alleviating symptoms of a muscular dystrophy which is characterized by levels of  $\alpha 7$  integrin, dystrophin and/or utrophin which are lower in a patient suffering from or susceptible to said muscular dystrophy than in a normal individual, said method comprising the step of administering to a patient suffering from or susceptible to the muscular dystrophy a DNA construct comprising an  $\alpha 7$  integrin coding sequence operably linked to a transcription regulatory sequence which enables selective expression in muscle cells and a vector sequence.
18. The method of claim 17 wherein the vector sequence is a virus vector sequence or a plasmid sequence.
19. The method of claim 18 wherein the step of administering is by intravenous administration.
20. The method of claim 18 wherein the step of administering is by intramuscular administration.
21. The method of claim 18 wherein the step of administering is by regional perfusion.
22. The method of claim 18 wherein the muscular dystrophy is Duchenne muscular dystrophy.
23. The method of claim 18 wherein the step of administering comprises ex vivo transformation of stem cells or myoblasts isolated from the patient to produce transformed myoblasts and subsequent administration of the transformed stem cells or transformed myoblasts to the patient with the result that the transformed myoblasts differentiate to form muscle cells which express  $\alpha 7$  integrin in the patient, whereby the symptoms of muscular dystrophy are ameliorated.